

THE IRREGULAR ERUPTION OF PERMANENT TEETH

This report deals with chronological and locational irregularities in the dentition of permanent teeth. During the last four years I have observed this in a majority of children, of both pre-school and school age, examined in the orthodontic department and during visits to the nursery schools of Prague's 3rd district. The approximate number of children examined was 4000.

We learnt and we used to teach our students that the first permanent molars are cut first, then the central incisors, etc., always starting with the lower jaw. This was the proper order of eruption of the permanent teeth! Twenty or thirty years ago we were writing that the lower permanent incisors are cut first, and only then the first permanent molars. Valšík says that these are cases of the incisive type of child, and speaks of them being physically advanced. If the first permanent molars are cut first, he refers to the molar type. So far our investigation has indicated 50% occurrence — first molars or first incisors.

Later we spoke and wrote of eruption of the permanent teeth already beginning after the age of 5. I myself wrote of this in a report on the examination of 28 000 children in the nursery schools of one half of Prague in 1960. But during visits to nursery schools I was surprised to find that the eruption of the permanent teeth begins in some children even during the 5th year, and in others between the 6th and 7th. We might therefore assume an acceleration of the process of dentition on the one hand, and its retardation on the other. I arranged the children diagrammatically according to size and weight, but I cannot state that there was any correlation between the eruption of the first permanent teeth and body size and weight.

It would seem that clinically and practically it is not so important whether, e.g. the premolars and canines are cut at the same time as the lateral incisors, or the canines after the appearance of the second permanent molars, or whether this is the case in the two quadrants of the same jaw also, or even in both jaws. I refer to the problem because this is not only an anthropological peculiarity of development and growth, but from the clinical point of view probably a cause of vertical anomalies of the orofacial system. Since these are cases of anomalous development and growth, and this is a fundamental biological problem, the circumstances and causes must be analyzed, and the changes in structure and function of the orofacial system studied, including those of pathogenic mechanisms.

I fear this to be a widespread phenomenon, and therefore consider it fitting to publish my observations. Generally speaking we are dealing with the prospects of the retention of a full set of permanent teeth, well-spaced in the alveolar processes, and with the proper setting of the roots in their bone tissue. This is a condition of the future long-term functioning of the orofacial system, of mastication and of the articulation of speech-sounds with normal phonation. This is the functional aspect. From the clinical point of view the question arises whether this problem must be demonstrated, and whether it is necessary to examine a considerable proportion of the diminishing and foreshortening of the function of the orofacial system as being due to this very chronological and locational irregularity in the eruption of the permanent teeth. I think so, since this is more than likely a condition of jaw anomalies in a vertical direction, paradontic diseases, and changes in the structure of the lower face.

What are the conditions and causes of this biological phenomenon? Phylogenetically speaking this is a generative process, incorporated in the genetic code. There is anomalous development and growth of the facial skeleton in the right and left upper and lower jaws (leaving aside cleft palates). An example is the crowding of the teeth even

in deciduous dentition and as late as the sixth year of age — i.e. during a period of active growth of the child. There is delayed development and growth of the skeleton, i.e. of the passive part of the orofacial system, and also delayed development and growth of the orofacial muscles, the active or functional part. These are the conditions of development and growth which I have so far been able to establish in relation to the crowding of the deciduous, and especially of the permanent teeth.

Ontogenetically speaking there is anomalous development of the jaw superstructure — the alveolar processes — a lack of exercise of the orofacial muscles. This is a question of the transversal and ventrodorsal pressures of the orofacial muscles in so-called orthodontic — better said orthopaedic — anomalies, acting on the alveolar processes during the opening and functioning of the mouth, i.e. in speaking and eating („restriction of the oral orifice“). All these are the demonstrated and demonstrable, stable and labile conditions and causes of crowding. The stable ones are those of phylogenesis, the unconditional ones. The labile ones are those of ontogenesis, the conditional ones.

The labile conditions mostly concern the problem of the mechanical aspect of nutrition and that of masticating pressures. I remember that during my assistanship at the Anthropological Institute — i.e. some fifty years ago — when examining children in homes and in state and private schools, I considered dental crowding — where a permanent tooth was cut out of line, frontally or laterally in a lingual or palatal direction — to be a rarity. Our research in 1960 showed a 19% occurrence of such anomalous eruption, and the present figure is already 27%. In those days food was tough or even hard, while the need for mastication seems to be getting smaller and smaller today, and thus the need for the masticating pressures which bring about the development and growth of the jaws, particularly of the alveolar processes, and build up the orofacial muscles.

Today it is already impossible to think in terms of local anomalies. We must promote the investigation of the causes and pathogenesis of the general state of health of the child. Internal disorganization must be objectively noted. The correct approach to this problem is from life, from clinical experience, especially from experience contained in anthropological research on the health of a child living in a particular family, ethnical and working environment. These are the questions for research. We are dealing with the orofacial system, the permanent teeth, which are lost through disease — caries and paradontopathies — mainly on the basis of the irregular development and growth of this whole system. The question is also an economic one. So attention must be paid to the general state of health of the child from the very beginning, from the moment of birth.

Now there remain only the questions: does the quality of nutrition play a part? Is the pattern of daily life of the child, physically, mentally and socially, involved? Or are we to look at diseases which are often system diseases and at their quality, or should we look at the results of the tetracycline medicines of today? Why and when does the stabilization of the structures and shape of the orofacial system come about? Can it be considered as an anthropological characteristic?

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REPORT ON THE 2nd INTERNATIONAL SCHOOL OF BIOLOGICAL ANTHROPOLOGY (ZAGREB, NOVEMBER 8-13, 1976)

The 2nd International School of Biological Anthropology, organized by the Yugoslav colleagues, took place in last November. In contrast to the 1st International School (Erice, Sicily, 1974) the programme of the Zagreb meeting